

WHAT IS CLAIMED IS:

1. An electrode for an electron gun, which is  
a first grid electrode located on a cathode side,  
the first grid electrode being one of a plurality of  
5 electrodes for the electron gun used in an electrode  
gun assembly, wherein a surface of the first grid  
electrode is formed to be a rough surface having  
a higher degree of surface roughness than a surface of  
a second grid electrode located adjacent to the first  
10 grid electrode.

2. The electrode for an electron gun according to  
claim 1, wherein the first grid electrode has a beam  
passage hole, and at least a peripheral portion of the  
beam passage hole is formed to be a rough surface.

15 3. The electrode for an electron gun according to  
claim 1, wherein the degree of surface roughness of the  
first grid electrode is higher than the degree of  
surface roughness of the second grid electrode.

20 4. The electrode for an electron gun according  
to claim 3, wherein the surface roughness (Rz) of  
the first grid electrode is in a range of 0.2  $\mu\text{m}$  to  
1.5  $\mu\text{m}$ .

25 5. The electrode for an electron gun according to  
claim 1, wherein the rough surface of the first grid  
electrode is formed by a surface reforming process.

6. A method of manufacturing an electrode for  
an electron gun, which is a first grid electrode

located on a cathode side, the first grid electrode being one of a plurality of electrodes for the electron gun used in an electrode gun assembly, wherein a surface of the first grid electrode is formed to be  
5 a rough surface having a higher degree of surface roughness than a surface of a second grid electrode located adjacent to the first grid electrode.

7. The method of manufacturing an electrode for an electron gun according to claim 6, wherein at least  
10 a peripheral portion of a beam passage hole provided in the first grid electrode is formed to be a rough surface.

8. The method of manufacturing an electrode for an electron gun according to claim 6, wherein the  
15 degree of surface roughness of the first grid electrode is made higher than the degree of surface roughness of the second grid electrode.

9. The method of manufacturing an electrode for an electron gun according to claim 8, wherein the  
20 surface roughness ( $R_z$ ) of the first grid electrode is set in a range of  $0.2 \mu\text{m}$  to  $1.5 \mu\text{m}$ .

10. The method of manufacturing an electrode for an electron gun according to claim 6, wherein the rough surface of the first grid electrode is formed by  
25 a surface reforming process.

11. An electron gun assembly having an electron beam generating section that generates an electron

beam, wherein the electron beam generating section comprises a cathode, a first grid electrode located on the cathode side, and a second grid electrode located adjacent to the first grid electrode, and

5           a surface of the first grid electrode is formed to be a rough surface having a higher degree of surface roughness than a surface of the second grid electrode.

10          12. The electron gun assembly according to claim 11, wherein the first grid electrode has a beam passage hole, and at least a peripheral portion of the beam passage hole is formed to be a rough surface.

15          13. The electron gun assembly according to claim 11, wherein the degree of surface roughness of the first grid electrode is higher than the degree of surface roughness of the second grid electrode.

14. The electron gun assembly according to claim 13, wherein the surface roughness (Rz) of the first grid electrode is in a range of 0.2  $\mu\text{m}$  to 1.5  $\mu\text{m}$ .

20          15. The electron gun assembly according to claim 11, wherein the rough surface of the first grid electrode is formed by a surface reforming process.